

## WHAT IS CLAIMED IS:

34/506  
1. A composition for the accelerated healing of wounds and burns and/or for  
improving the appearance of scar tissue resulting from such wounds and burns  
5 comprising non-linked, small particles of bioactive glass in a carrier.

2. The composition of claim 1, further comprising one or more therapeutic  
agents.

3. The composition of claim 2, wherein therapeutic agent(s) are selected from  
the group consisting of healing promotion agents, growth factors, anti-inflammatory  
agents and topical anesthetics.

4. The composition of claim 2, wherein the therapeutic agent is a topical  
antibiotic.

5. The composition of claim 4, wherein the topical antibiotic is selected from  
the group consisting of chloramphenicol, chlortetracycline, clindamycin, clioquinol,  
erythromycin, framycetin, gramicidin, fusidic acid, gentamicin, mafenide, mupirocin,  
neomycin, polymyxin B, bacitracin, silver sulfadiazine, tetracycline, chlortetracycline  
and combinations thereof.

6. The composition of claim 1, wherein the pharmaceutically acceptable carrier  
is a cream base, high moisture gel, white petrolatum, light mineral oil, or mixture  
thereof.

7. The composition of claim 1, wherein the bioactive glass has a composition by weight percentage:

<u>Component</u>	<u>Percent</u>
SiO <sub>2</sub>	40-86
CaO	10-46
Na <sub>2</sub> O	0-35
P <sub>2</sub> O <sub>5</sub>	2-8
CaF <sub>2</sub>	0-25
B <sub>2</sub> O <sub>3</sub>	0-10
K <sub>2</sub> O	0-8
MgO	0-5

8. The composition of claim 1, wherein the bioactive glass has a composition by weight percentage:

<u>Component</u>	<u>Percent</u>
SiO <sub>2</sub>	45
CaO	24.5
Na <sub>2</sub> O	24.5
P <sub>2</sub> O <sub>5</sub>	6

9. The composition of claim 1, wherein the bioactive glass has a particle size range less than about 90 microns as measured by SEM or laser light scattering techniques.

10. The composition of claim 1, wherein the bioactive glass has a particle size range less than about 20 microns as measured by SEM or laser light scattering techniques.

11. The composition of claim 1, wherein the bioactive glass has a particle size range less than about 2 microns as measured by SEM or laser light scattering techniques.

12. A method for treating wounds and burns comprising the contacting of a wound with an effective wound healing amount of bioactive glass.

13. A method for grafting skin comprising applying bioactive particulate glass to a graft site, the donor tissue, or both.

14. The method of claim 13, further comprising the application of a topical antibiotic to the graft site, the donor tissue, or both.

15. A wound or burn dressing comprising a bandage, a topical antibiotic and non-linked particles of bioactive glass.

16. The wound or burn dressing of claim 15 wherein the bandage is cotton, gauze, fiberglass, or synthetic material.

17. The dressing of claim 16 wherein the fiberglass is made from bioactive glass

18. A wound or burn treatment applicator apparatus comprising a topical carrier in a first chamber, a non-linked particles of bioactive glass in a second chamber and a mixing means for mixing the topical antibiotic and the bioactive glass.

19. The apparatus of claim 18, wherein the wound or burn treatment apparatus is a multi chamber syringe.

20. A method for accelerating the healing of wounds or burns comprising contacting a wound or burn with an effective wound or burn healing accelerating amount of a particulate bioactive glass.

5  
Sub C1  
21. A method for improving the appearance of the scar formed during the healing of wounds or burns comprising contacting a wound or burn with an effective scar appearance improving amount of a non-linked, particulate bioactive glass.

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22. The method of claim 21 wherein the bioactive glass is present in a composition comprising the bioactive glass in the form of non-linked, small particles of bioactive glass and a suitable carrier.

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Sub 33  
23. The composition of claim 1, wherein the bioactive glass particles have been combined with a biocompatible, biodegradable material to form a composite material.

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Sub C1  
24. A method of reducing the level of inflammation in a wound by contacting the wound with an effective inflammation reducing amount of a bioactive glass.

25. The method of claim 24 wherein the inflammation is chronic inflammation.

26. A method of reducing the level of bacterial infection in a wound comprising contacting the wound with an effective antibacterial amount of a bioactive glass.

27. The method of claim 26, wherein the bioactive glass has a composition by weight percentage:

<u>Component</u>	<u>Percent</u>
SiO <sub>2</sub>	40-86
CaO	10-46
Na <sub>2</sub> O	0-35
P <sub>2</sub> O <sub>5</sub>	2-8
CaF <sub>2</sub>	0-25
B <sub>2</sub> O <sub>3</sub>	0-10
K <sub>2</sub> O	0-8
MgO	0-5

28. The method of claim 26, wherein the bioactive glass has a composition by weight percentage:

<u>Component</u>	<u>Percent</u>
SiO <sub>2</sub>	45
CaO	24.5
Na <sub>2</sub> O	24.5
P <sub>2</sub> O <sub>5</sub>	6

29. The method of claim 26, wherein the bioactive glass has a particle size range less than about 90 microns as measured by SEM or laser light scattering techniques.

30. The method of claim 26, wherein the bioactive glass has a particle size range less than about 20 microns as measured by SEM or laser light scattering techniques.

31. The method of claim 26, wherein the bioactive glass has a particle size range less than about 2 microns as measured by SEM or laser light scattering techniques.

32. An antibacterial composition comprising non-linked, small particles of bioactive glass.

33 The composition of claim 32, wherein the bioactive glass has a composition by weight percentage:

<u>Component</u>	<u>Percent</u>
SiO <sub>2</sub>	40-86
CaO	10-46
Na <sub>2</sub> O	0-35
P <sub>2</sub> O <sub>5</sub>	2-8
CaF <sub>2</sub>	0-25
B <sub>2</sub> O <sub>3</sub>	0-10
K <sub>2</sub> O	0-8
MgO	0-5

34. The composition of claim 32, wherein the bioactive glass has a composition by weight percentage:

<u>Component</u>	<u>Percent</u>
SiO <sub>2</sub>	45
CaO	24.5
Na <sub>2</sub> O	24.5
P <sub>2</sub> O <sub>5</sub>	6

35. The composition of claim 32, wherein the bioactive glass has a particle size range less than about 90 microns as measured by SEM or laser light scattering techniques.

36. The composition of claim 32, wherein the bioactive glass has a particle size range less than about 20 microns as measured by SEM or laser light scattering techniques.

37. The composition of claim 32, wherein the bioactive glass has a particle size range less than about 2 microns as measured by SEM or laser light scattering techniques.

38. An antibacterial composition comprising an aqueous extract of small particles of bioactive glass.

39. The composition of claim 38, wherein the bioactive glass has a composition by weight percentage:

<u>Component</u>	<u>Percent</u>
SiO <sub>2</sub>	40-86
CaO	10-46
Na <sub>2</sub> O	0-35
P <sub>2</sub> O <sub>5</sub>	2-8
CaF <sub>2</sub>	0-25
B <sub>2</sub> O <sub>3</sub>	0-10
K <sub>2</sub> O	0-8
MgO	0-5

40. The composition of claim 38, wherein the bioactive glass has a composition by weight percentage:

<u>Component</u>	<u>Percent</u>
SiO <sub>2</sub>	45
CaO	24.5
Na <sub>2</sub> O	24.5
P <sub>2</sub> O <sub>5</sub>	6

41. Cosmetic products comprising non-interlinked particles of bioactive glass and/or an aqueous extract thereof in combination with a liquid cosmetic base containing water.

42. The cosmetic products of claim 41, wherein the cosmetic base comprises a liquid material selected from the group consisting of liquid foundation, skin lotion, milky lotion, shampoo, hair rinse and cream.

43 The cosmetic products of claim 41, wherein the bioactive glass has a composition by weight percentage:

<u>Component</u>	<u>Percent</u>
SiO <sub>2</sub>	40-86
CaO	10-46
Na <sub>2</sub> O	0-35
P <sub>2</sub> O <sub>5</sub>	2-8
CaF <sub>2</sub>	0-25
B <sub>2</sub> O <sub>3</sub>	0-10
K <sub>2</sub> O	0-8
MgO	0-5

44. The cosmetic products of claim 41, wherein the bioactive glass has a composition by weight percentage:



<u>Component</u>	<u>Percent</u>
SiO <sub>2</sub>	45
CaO	24.5
Na <sub>2</sub> O	24.5
P <sub>2</sub> O <sub>5</sub>	6

45. The cosmetic products of claim 41, wherein the bioactive glass has a particle size range less than about 90 microns as measured by SEM or laser light scattering techniques.

46. The cosmetic products of claim 41, wherein the bioactive glass has a particle size range less than about 20 microns as measured by SEM or laser light scattering techniques.

47. The cosmetic products of claim 41, wherein the bioactive glass has a particle size range less than about 2 microns as measured by SEM or laser light scattering techniques.

48. Prosthetic implants, sutures, stents, screws, plates and tubes comprising the composition of claim 1.

49. Devices used for *in vitro* cell culture comprising the composition of claim 1.